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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/663,789 | 09/17/2003 | Raymund Sonnenschein | 235969US0 | 3776 |
| 22850 | 7590 | 06/15/2006 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. | | | LUND, JEFFRIE ROBERT | |
| 1940 DUKE STREET | | | ART UNIT | PAPER NUMBER |
| ALEXANDRIA, VA 22314 | | | 1763 | |

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/663,789 | | SONNENSCHN, RAYMUND | |
| | Examiner | | Art Unit | |
| | Jeffrie R. Lund | | 1763 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 17-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 27, 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 12 is objected to because of the following informalities: in line 4 "silicone" should read --silicon--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-16, 27, and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amendment filed September 17, 2003 added the limitation "depositing polycrystalline silicone thereon". Depositing silicone is not taught by the specification. The Examiner believes that the Applicant intended to claim "depositing polycrystalline silicon thereon".

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16, 27, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite in that it is not clear what the term "solid" means.

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Claim 9 recites the limitation "said movable substance-adding unit" in line 2.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6, 7, 9-13, 15, 16, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kordina et al, US patent 5,704,985.

Kordina et al teaches a device that includes: a cup composed of a graphite tube susceptor 7' coated with SiC (SiC includes silicon) forming the walls of the cup having two openings, and a vertically movable SiC substrate base (SiC includes silicon) 13' oriented in a the direction of the force of gravity, with an outer diameter equal to the outer diameter of the tube; heater 11 for heating the cup which includes a temperature control unit with a pyrometer for heating the base and cup; a SiC substance-adding unit 15' having a substance feed line, a metering unit, and a substance outlet oriented in the direction of the force of gravity and projecting into the cup; a gas tight, vacuum and pressure resistant reactor casing 2; a gas tight cover 3, 4; an outlet 16; a gas-conveying unit (pump) down stream of the outlet; a turbulence barrier 14' upstream of the outlet. The substrate base is suitable for depositing polycrystalline silicon thereon. Kordina et al also teaches that the apparatus can deposit any crystalline material. (Entire document, specifically, figure 3) The apparatus of Kordina et al inherently has a gas-

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conveying unit. The specific material deposited is an intended use of the apparatus, and the apparatus of Kordina et al is capable of depositing polycrystalline silicon.

8. The Examiner notes that the open language of the claims (comprising or comprised) only requires that the silicon parts include silicon and does not limit other material combined with the silicon. Thus the claims read on any material that also contains silicon, such as SiC.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kordina et al, US Patent 5,704,985, in view of Goela et al, US Patent 5,604,151.

Kordina et al was discussed above.

Kordina et al differs from the present invention in that Kordina et al does not teach that the outlet is connected to a gas-conveying unit with a dust separator.

Goela et al teaches a deposition chamber that includes a gas-conveying unit 52 that includes a dust separator 60. (Figure 1)

The motivation for adding a gas-conveying unit and dust separator to the apparatus of Kordina et al is to provide a required but not disclosed means of evacuating the reactor casing as taught by Goela et al. The motivation for adding the dust separator to the apparatus of Kordina et al is to remove the dust from the exhaust

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to prevent damaging the gas-conveying unit as taught by Goela et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the gas-conveying unit and dust separator of Goela et al to the apparatus of Kordina et al.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kordina et al, US Patent 5,706,985.

Kordina et al was discussed above.

Kordina et al differs from the present invention in that Kordina et al does not teach the size of the cup and base.

The motivation for making the cup and base a specific size is to optimize the cup and base of Kordina et al. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the size of the cup and base of Kordina et al.

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kordina et al, US Patent 5,704,985, in view of Padovani, US Patent 4,207,360.

Kordina et al was discussed above.

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Kordina et al differs from the present invention in that Kordina et al does not teach that the reactor casing is equipped with a cooler.

Padovani teaches a coating device that includes a casing 15 with inductive heating coils 21, 22 and cooling coils 20. (Figure 2)

The motivation for adding a cooler to the casing of Kordina et al is to maintain the temperature of the casing at the proper temperature as taught by Padovani (column 3 lines 60-66).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the cooler of Padovani to the apparatus of Kordina et al.

13. Claims 1-4, 6, 7, 9-13, 15, 16, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kordina et al, US Patent 5,704,985, in view of Maruyama et al US Patent 6,001,175.

Kordina et al was discussed above.

Kordina et al differs from the present invention in that Kordina et al does not teach that the tube, base, and substance-adding unit are made only of silicon.

Maruyama et al teaches that a high-purity carbon (graphite) susceptor coated with silicon carbide (SiC) is equivalent to a low resistivity silicon substrate susceptor.

The motivation for replacing the susceptor, base, and substance-adding unit made of SiC coated graphite of Kordina et al with a silicon susceptor, base, and substance-adding unit is to provide an alternate and equivalent material from which to make the susceptor, base, and substance-adding unit, and to prevent the contamination of the deposited material by carbon from the SiC coated carbon susceptor, base, and

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substance-adding unit as taught by Maruyama et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the carbon coated SiC susceptor, base, and substance-adding unit of Kordina et al with a silicon susceptor, base, and substance-adding unit as taught by Maruyama et al.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kordina et al, US Patent 5,704,985, and Maruyama et al, US Patent 6,001,175, as applied to claims 1-4, 6, 7, 9-13, 15, 16, 27, and 28 above, and further in view of Goela et al, US Patent 5,604,151.

Kordina et al and Maruyama et al differ from the present invention in that they do not teach that the outlet is connected to a gas-conveying unit with a dust separator.

Goela et al teaches a deposition chamber that includes a gas-conveying unit 52 that includes a dust separator 60. (Figure 1)

The motivation for adding a gas-conveying unit and dust separator to the apparatus of Kordina et al and Maruyama et al is to provide a required but not disclosed means of evacuating the reactor casing as taught by Goela et al. The motivation for adding the dust separator to the apparatus of Kordina et al and Maruyama et al is to remove the dust from the exhaust to prevent damaging the gas-conveying unit as taught by Goela et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the gas-conveying unit and dust separator of Goela et al to the apparatus of Kordina et al and Maruyama et al.

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15. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kordina et al, US Patent 5,704,985, and Maruyama et al, US Patent 6,001,175, as applied to claims 1-4, 6, 7, 9-13, 15, 16, 27, and 28 above.

Kordina et al and Maruyama et al differ from the present invention in that they do not teach the size of the cup and base.

The motivation for making the cup and base a specific size is to optimize the cup and base of Kordina et al and Maruyama et al. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the size of the cup and base of Kordina et al and Maruyama et al.

16. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kordina et al, US Patent 5,704,985, and Maruyama et al, US Patent 6,001,175, as applied to claims 1-4, 6, 7, 9-13, 15, 16, 27, and 28 above, and further in view of Padovani, US Patent 4,207,360.

Kordina et al and Maruyama et al differ from the present invention in that they do not teach that the reactor casing is equipped with a cooler.

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Padovani teaches a coating device that includes a casing 15 with inductive heating coils 21, 22 and cooling coils 20. (Figure 2)

The motivation for adding a cooler to the casing of Kordina et al and Maruyama et al is to maintain the temperature of the casing at the proper temperature as taught by Padovani (column 3 lines 60-66).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the cooler of Padovani to the apparatus of Kordina et al and Maruyama et al.

Response to Arguments

17. Applicant's arguments with respect to claims 1-16, 27, and 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

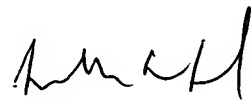
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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
6/11/06